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| 09/881,564 | 06/14/2001 | Kazuyoshi Takeda | 9319S-000231 | 5854 |
| 27572 | 7590 | 06/27/2005 | EXAMINER | |
| HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303 | | | PROCTOR, JASON SCOTT | |
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2123

DATE MAILED: 06/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/881,564

Applicant(s)

TAKEDA, KAZUYOSHI

Examiner

Jason Proctor

Art Unit

2123

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 March 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claims 1-6 were presented for examination and rejected in Office Action mailed on December 30, 2004. Claims 1-6 have been amended in response mailed on March 29, 2005. Claims 1-6 are currently pending in the application.

Claims 1-6 have been rejected.

Response to Objections to the Specification

The Examiner thanks Applicant for submission of a substitute specification. The Examiner concurs that no new matter has been added. The previous objections to the specification have been withdrawn.

Double Patenting

1. The terminal disclaimer filed on March 29, 2005 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of the full statutory term of any patent granted on pending reference Application Number 09/881,195, filed on June 14, 2001, has been reviewed and is accepted. The terminal disclaimer has been recorded.

Response to Rejections under 35 U.S.C. § 101

The Examiner thanks Applicant for addressing the issues raised under 35 U.S.C. § 101 in the previous Office Action. These issues have been satisfactorily resolved by the amendments to the claims. Subsequently, the previous rejections under 35 U.S.C. § 101 have been withdrawn.

Response to Rejections under 35 U.S.C. § 112

The Examiner thanks Applicant for addressing the issues raised under 35 U.S.C. § 112 in the previous Office Action. These issues have been satisfactorily resolved by the amendments to the claims. Subsequently, the previous rejections under 35 U.S.C. § 112 have been withdrawn.

Response to Rejections under 35 U.S.C. § 102

Regarding the rejection of claims 1-3 and 5 under 35 U.S.C. § 102(b) as being anticipated by US Patent No. 5,218,605 to Low et al. (Low), Applicant has correctly presumed the reference to Patent No. 5,218,611 is a typographical error and that the intended reference is 5,218,605. The Examiner apologizes for any confusion this error may have caused. Applicant argues primarily that:

The Low system does not simulate the operation of the target system operating the target program in response to the input event. Rather, the Low system simulates user input only, and communicates the simulated user input to the application program that is being operated in its normal environment. By performing a simulation of an operation of a target system operating a target program, the present invention is distinguishable from the Low system that simulates only user input.

The Examiner respectfully traverses this argument as follows.

The Examiner respectfully draws Applicants' attention to the portions of the specification (as amended, emphasis added) of the instant application which support Applicants' arguments:

Art Unit: 2123

[0030] In the simulator 3, a simulation program is read from a storage medium storing the simulation program by the disk unit DU of the personal computer PC. The simulation program is loaded into the main storage unit and is executed by the central CPU to perform a simulation. The simulator 3 reads an application program AP of the microcomputer from the disk unit DU, and simulates operation of the application program AP.

[0045] When the input event is transmitted from the automatic evaluation system 1, the simulator 3 simulates the operation of the application program AP on the basis of this input event. [...] The processing of the simulator 3 performed here is normally the same as the processing of the simulation of the operation by the application program AP, and a special processing is not performed for carrying out the automatic evaluation. Accordingly, the same application program AP actually installed in the microcomputer can be used.

[0060] As described above, according to this automatic evaluation system 1, the access between the automatic evaluation system 1 and the simulator 3 is enabled by accessing the API commands or the RAM 10. Thus, it is not necessary to add a specific function to the automatic evaluation system 1 and the simulator 2 in order to transmit the input event from the automatic evaluation system 1 to the simulator 2 and to refer to the simulation result data of the simulator 2 by the automatic evaluation system 1. Further, it is not necessary to install a function for automatic evaluation into the application program AP. The same application program actually installed in a microcomputer may be used. Further, according to this automatic evaluation system 1, even if there are a plurality of states of an output screen for one input event, an automatic evaluation to the respective output screen can be carried out.

[0062] For example, although the API commands and the RAM are used for the communication between the automatic evaluation system 1 and the simulator 3, the invention is not limited to these means but may use other means.

[0063] Besides this, although the automatic evaluation system 1 and the simulator 3 are formed in the same personal computer, they may be formed in another electronic computer such as a workstation.

Additionally, as explained in the previous Office Action (section 15, page 6) and supported by the Banks reference, Applicants' disclosed invention does not perform a "simulation" according to the definition as known in the art. Applicants have addressed the use of this term in response to the previous rejections under 35 U.S.C. § 112. While Applicant is permitted to act as his or her own lexicographer according to MPEP 2111.01, this does not create a burden on the Examiner to reject with prior art *ipsis verbis*.

MPEP 2111 requires that claims be given their broadest reasonable interpretation in light of the disclosure. Applicants' arguments are narrower in scope than the teachings of the disclosure. The specification does not disclose a supportive teaching of a "simulation"; rather the specification teaches that the test program is loaded, its execution is carried out by

Art Unit: 2123

“simulator”, and user input events are transmitted to it. Low explicitly teaches this method where the test program is loaded, executed in its normal environment (column 3, lines 6-17), and user input events are transmitted to it (column 3, lines 53-63). Further, the specification of the instant application teaches that the “simulator” may be embodied in a second computer, which is explicitly taught by Low (*remote device*, column 3, lines 24-30). The claim does not exclude this embodiment. The disclosure does not teach a “simulation” that is distinguishable from the system of Low. Thus, the system of Low anticipates the invention as claimed granting the broadest reasonable interpretation of the claims.

Therefore, Applicants’ arguments related to “simulation” are narrower than the invention as claimed. The Examiner has permitted Applicant to be his or her own lexicographer regarding the term “simulation” and has interpreted the meaning of the claims in light of the specification, as required by MPEP 2111 and 2111.01. Applicants arguments are directed primarily toward an interpretation of the word “simulation” which is not supported by the disclosure of the application. Applicants’ arguments have been fully considered but they are unpersuasive.

Applicant further argues that:

Applicant notes that claims 1, 3, and 5 recite capturing the simulation result data by referring to the output screen when the output screen is renewed, which occurs a number of times corresponding to a number of valid states of the output screen expected to result from the input event.” Low does not teach or suggest capturing simulation result data in this manner.

The Examiner respectfully draws Applicants’ attention to the portions of the specification (as amended, emphasis added) of the instant application which might support Applicants’ arguments:

[0040] [...] Then, as the input event 20, when the key input of view (a) is performed, as shown in view (c), “ABC_” is displayed as a reference output result 23 from the upper left end to the right on a reference

Art Unit: 2123

output screen 22 of the LCD. Incidentally, in the case where " " is the blinking cursor, "ABC " as a non-reverse pattern and "ABC" as a reverse pattern are displayed as the reference output results 23. In this case, with respect to the reference output result 23, the image data for the display of the LCD of "ABC " and, "ABC" and the display position data on the LCD screen are stored as the reference data in the reference output file OF.

The disclosure of the application teaches the limitations referred to in Applicants' arguments as exemplified by a blinking cursor, which creates "a number of times corresponding to a number of valid states of the output screen". In this instance, a blinking cursor creates a "non-reverse pattern" and a "reverse" pattern as the cursor blinks.

The Examiner respectfully draws Applicants' attention to the Low reference (column 7, lines 23-34, emphasis added):

For example, in the case of a single blinking cursor, most of the time the cursor is either on or off, while only a small fraction of the time it is in a transient state (i.e. neither completely on nor completely off). Consequently, using a histogram as noted above, only a signature representing the cursor fully on or fully off (each of which, for example, may account for 46% of the captured signatures) is stored in the signature file 106. In a preferred embodiment, the present invention always assumes that there may be blinking fields, and a histogram is always produced.

Also (column 8, lines 45-56):

FIG. 2A shows the basic operation of the Playback Mode 200 of the present invention. [...] If all the hardware and software application(s) work properly, the signatures generated during Playback Mode 200 should match corresponding signatures generated during Record Mode 100.

Low explicitly not only teaches the recited limitations relating to "a number of valid states of the output screen", but also anticipates the example disclosed in the specification of the instant application. Low explicitly teaches an example of capturing a "signature" corresponding to a cursor fully on ("non-reverse") and fully off ("reverse") in the signature file. Low explicitly teaches that the signatures generated during Playback Mode correspond to those signatures generated during Record Mode (such as "cursor fully on" and "cursor fully off"). Applicants' arguments have been fully considered but they are unpersuasive.

Response to Rejections under 35 U.S.C. § 103

Regarding the rejection of claims 4 and 6 under 35 U.S.C. § 103(a) as being unpatentable over Low as applied to claims 3 and 5 and further in view of US Patent No. 5,233,611 to Triantafyllos et al. (Triantafyllos), Applicant argues that claims 4 and 6 depend from allegedly allowable claims 3 and 5, which arguments have been found unpersuasive. Applicant further argues that:

The Triantafyllos done message is not functionally equivalent to a display rewriting completion event. The Triantafyllos done message is not reported by a simulation unit as in claim 4 or a simulator as in claim 6. The Triantafyllos done message appears to be reported by a communication program subsequent to a communication request.

The Examiner respectfully traverses this argument as follows.

Applicants' use of the term "simulation unit" and "simulator" has been addressed *supra*. The Examiner does not have a burden to show a prior art "simulator" *ipsis verbis*. Triantafyllos is clearly directed toward "Automated Function Testing of Application Programs" (title), as is Applicants' claimed invention.

The Examiner respectfully draws Applicants' attention to the Triantafyllos reference (column 7, line 51 – column 8, line 5, emphasis added):

Main thread 70 is requested and reads the video buffer 42 of application program 18 in the following manner.

[...]

3) Main thread 70 is activated and copies the requested screen information field by field, from logical video buffer 42 into video buffer 54 in shared memory 41 allocated specifically for this purpose.

4) Main thread 70 then sends a "complete" message to test program semaphore 56 and waits for another command from test case program 34.

5) Test program 34 reads the "complete" message from semaphore 56 and resumes activity.

Also (column 9, line 64 – column 10, line 3, emphasis added):

Next, character thread 70 sets the character semaphore 46 (step 124) and releases the main semaphore 56 (step 126) of test program 34 to permit test program 34 to process the next function from test case 22, for example, receive the next character. Application 18 reads and processes the keystroke to yield screen data which is stored in logical video buffer 42 and displayed on screen 43 via video subsystem 103.

Art Unit: 2123

When semaphore 56 is released, test program 34 is permitted to, for example, receive the next character, which prompts application 18 to read and process the keystroke to yield screen data which is stored in logical video buffer 42. Thus the Triantafyllos “complete” message is functionally equivalent to a “display rewriting completion event”. Applicants’ arguments have been fully considered but they are unpersuasive.

Outstanding Rejections

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-3 and 5 are rejected under 35 U.S.C. § 102(b) as being anticipated by US Patent No. 5,218,605 to Low et al. (Low).

Regarding claims 1 and 3, Low teaches a method and apparatus for testing software applications (column 4, lines 48-53) by referring to an output screen as a result of an input event (column 5, lines 45-60), comprising:

performing a simulation of at least one operation of the target system operating
the target program in response to an input event (column 6, lines 15-25,
the “simulation” being taught by at least the portion reading: “*the visual*

display device responds as if the composite data were entered into the software application(s) directly”)

referring to the output screen, where the number of acceptable results is equal to the number of states of the output screen expected to result from the input event (column 7, lines 11-34; column 16, line 65 – column 17, line 6), the captured screen results correspond to a number of valid states of the output screen expected to result from the input (column 7, lines 23-34; column 8, lines 45-56), comparing the simulation result to the reference data which is prepared in advance to carry out an automatic evaluation (column 5, lines 50-60), and reporting that the target program operating correctly or incorrectly based on a correspondence between the captured simulation result and the reference data (column 9, lines 7-13).

Regarding the references to the output screen, Low teaches that in the exemplary case of a blinking cursor, a histogram is created to establish that there are two states to be considered definite and stores the screen output corresponding to those two states. Low therefore makes reference to the output screen when storing a screen signature for each acceptable state of the output screen.

Regarding claim 2, Low teaches that the number of times the output screen is to be referenced is stored alongside data of the input event (column 16, line 65 – column 17, line 6).

2. Regarding claim 5, Low teaches a computer-implemented method and apparatus for testing software applications (column 4, lines 48-53) by referring to an output screen as a result of an input event (column 5, lines 45-60), comprising:

- a step of reading an input event and reference data prepared in advance for the input event (column 5, lines 6-9; column 5, lines 39-44);
- a step of transmitting the input event to cause execution of the application being tested (column 5, lines 45-60; column 6, lines 15-18);
- a step of performing the operation of the application being tested and referring to the output screen, where the number of acceptable results is equal to the number of states of the output screen expected to result from the input event (column 6, lines 18-25; column 5, lines 45-60; column 7, lines 11-34; column 16, line 65 – column 17, line 6), and
- a step of reporting that the target program operating correctly or incorrectly based on a correspondence between the captured simulation result and the reference data (column 9, lines 7-13).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

Art Unit: 2123

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 4 and 6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Low as applied to claims 3 and 5 above, respectively, and further in view of US Patent No. 5,233,611 to Triantafyllos et al. (Triantafyllos).

Regarding claim 4, Low does not teach a display rewriting completion event.

Triantafyllos teaches an automatic function testing system (column 3, lines 42-46) where input events are transmitted to the program being tested and the resulting display is analyzed to determine if the application is working properly (column 3, lines 62-67). Triantafyllos also teaches that functions which require sending or receiving information from the application under test communicate via shared memory while a communication program writes a “done” message to a semaphore (column 4, lines 52-61). Thus, upon receiving an input event, the invention taught by Triantafyllos executes the input event on the application under test, thereby updating the display, and writes a “done” message to the semaphore. This is interpreted as functionally equivalent to a “display rewriting completion event”. (See also column 7, line 51 – column 8, line 5; column 9, line 64 – column 10, line 3.)

It would have been obvious to a person of ordinary skill in the art at the time of Applicant’s invention to combine the features of prior art to obtain the expected results as desired by the Applicant, such as the “done” message and semaphore taught by Triantafyllos with the method and apparatus for testing a software application taught by Low. Such an arrangement would combine the efficiency of Triantafyllos’ screen capture methods with the structure of Low’s apparatus. The combination could be achieved by incorporating the

Art Unit: 2123

semaphore and “done” message into the DCLS module taught by Low (column 10, line 65 – column 11, lines 11).

4. Regarding claim 6, Low does not teach a display rewriting completion event.

Triantafyllos teaches an automatic function testing system (column 3, lines 42-46) where input events are transmitted to the program being tested and the resulting display is analyzed to determine if the application is working properly (column 3, lines 62-67). Triantafyllos also teaches that functions which require sending or receiving information from the application under test communicate via shared memory while a communication program writes a “done” message to a semaphore (column 4, lines 52-61). Thus, upon receiving an input event, the invention taught by Triantafyllos executes the input event on the application under test, thereby updating the display, and writes a “done” message to the semaphore. This is interpreted as functionally equivalent to a “display rewriting completion event”. (See also column 7, line 51 – column 8, line 5; column 9, line 64 – column 10, line 3.)

It would have been obvious to a person of ordinary skill in the art at the time of Applicant’s invention to combine the features of prior art to obtain the expected results as desired by the Applicant, such as the “done” message and semaphore taught by Triantafyllos with the method and apparatus for testing a software application taught by Low. Such an arrangement would combine the efficiency of Triantafyllos’ screen capture methods with the structure of Low’s apparatus. The combination could be achieved by incorporating the semaphore and “done” message into the DCLS module taught by Low (column 10, line 65 – column 11, lines 11).

Conclusion

Art considered pertinent by the examiner but not applied has been cited on form PTO-892.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Proctor whose telephone number is (571) 272-3713. The examiner can normally be reached on 8:30 am-4:30 pm M-F.


Art Unit: 2123

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached at (571) 272-3749. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-3713.

Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 Group receptionist: 571-272-2100. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jason Proctor
Examiner
Art Unit 2123

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